

REMARKS

Claims 1-6 and 8-20 were pending in the present patent application, and are rejected. New claim 21 has been added. This application now includes claims 1-6 and 8-21.

Applicants respectfully request reconsideration of the rejection of claims 1-6 and 8-20 in view of the following.

The Examiner rejected claims 1-6 and 8-10 and 12-16 under 35 U.S.C. § 102(e) as being anticipated by Liu (U.S. Patent No. 6,925,844).

Claim 1 recites, “A lockset, comprising: a lock mechanism having an aperture; an operator; and a turn-button mounted in said operator during assembly of said lockset, said turn-button including: a head portion; and a shaft extending from said head portion, said shaft having a leading helical end portion that engages said aperture of said lock mechanism.” (Emphasis added).

In rejecting claim 1, the Examiner relies on the Liu lock 100 as corresponding to the recited “lock mechanism”, the key core 110 as corresponding to the recited actuator, the pair of keyways 112 and the positioning slot 114 as corresponding to the recited aperture, the core head 111 as corresponding to the recited “operator”, the key 200 as corresponding to the recited “turn-button”, the head driver 220 as corresponding to the head portion of the turn-button, the key blade portion 230 as corresponding to the recited “shaft”, and the helical key blade 236” as corresponding to the recited “leading helical tip”.

Most any house or apartment has an interior door, such as a bedroom or bathroom door, that includes a turn-button. It is well known in the art that the Liu key 200 is not mounted to the lock, such as the Liu lock 100, but rather is removably received in the keyways 112 such that the user can freely insert and remove the key from the keyway (see Liu column 4, lines 60-64). It is

also well known in the art that a turn-button, sometimes also referred to in the art as a turn-piece, is mounted in the operator (e.g., door knob), such that a user cannot remove the turn-button.

Notwithstanding, for clarification on this point, claim 1 has been amended to recite that the turn-button is mounted in the operator “during assembly of said lockset”. Support for the amendment to claim 1 may be found, for example, in Applicants’ specification at page 1, lines 8-15.

Further, Applicants submit that the key 200 of Liu is not what is understood by one of ordinary skill in the art to be a turn-button (also sometimes spelled “turn button”, and also sometimes referred to as a turnpiece). For example, the present application, as well as each of U.S. Patents 4,631,944; 5,317,889; 5,335,950; 5,441,318; 6,598,440; and 6,745,602 shows and describes a turn-button/turnpiece. The owners of these patents are variously Kwikset, Emhart or Newfrey LLC, who constitute a market share of about 60%. Accordingly, there is an extensive use of the terms turn-button/turnpiece in the art to refer to the particular item used in a door handle assembly that is mounted in an operator (e.g., door knob) to actuate a lock mechanism. However, clearly a turn-button is not a key that would be received in a keyway. Thus, the key 200 of Liu is not a turn-button, as recited in claim 1.

The Examiner asserts that patents 5,363,614; 5,140,843 and 3,630,053 show that it has been proven that keys are used as permanent turn-buttons or turnpieces. At most, these references show that in rare situations, a key may be inserted into a keyway and made permanent with the lock (e.g., solder, weld or mechanical retainer). Notwithstanding, the key must be inserted into the keyway of the lock mechanism, and thus is still functioning as a key. Further, the Examiner’s assertion misses the point, in that such a permanent attachment is not what is disclosed in Liu, nor would it be consistent with the teaching in Liu, as the key in Liu always functions as a removable key.

In addition, in Liu the spiraling key blade 236''' shown in Liu Fig. 6C does not constitute what one skilled in the art would consider as being a "shaft", nor does Liu support such a contention. Rather, Liu describes the spiraling element 236''' as a helical key blade having an elongated rectangular cross section (Liu column 6, lines 52-64).

In view of the above, Applicants respectfully submit that Liu does not disclose, teach or suggest the subject matter of claim 1. Therefore, claim 1 is believed allowable in its present form.

Claim 2 depends from claim 1, and is believed allowable in view of its dependence on an otherwise allowable base claim. In addition, claim 2 is believed allowable in its own right.

Claim 2 recites, in part, "said leading helical end portion having a plurality of leading helical surfaces that taper and twist from a transition line of said shaft toward a tip end of said shaft." (Emphasis added). In rejecting claim 2, the Examiner relies on Liu Fig. 6C.

The Examiner asserts that as shown in Liu Figures 6, "the helical surfaces taper towards a center, transition line (axial center line of the shaft), and end at the end of the shaft." This statement is not understood, but in any event, deviates from the claim language in a material way. Claim 2 recites that the plurality of leading helical surfaces taper and twist from a transition line of said shaft toward a tip end of said shaft.

Notwithstanding, in rejecting claim 1 from which claim 2 depends, the Examiner relies on the key blade portion 230 as corresponding to the recited "shaft", and the helical key blade 236''' as corresponding to the recited "leading helical tip". However, in Liu the surfaces of helical key blade 236''' do not twist from a transition line of said shaft, as recited in claim 2, since it is the helical key blade portion 230 that is asserted by the Examiner to be the shaft, and thus does not define a transition line.

Further, while the surfaces of helical key blade 236''' spiral, the surfaces of helical key blade 236''' do not taper *from a transition line of the shaft*. As stated in Liu in relation to Fig. 6C, the key blade 236''' is of elongated rectangular cross section (Liu column 6, lines 62-64), and as shown in Fig. 6C, uniformly spirals around a central axis while maintaining the diameter of the spiral (necessarily so since it must be configured to follow the keyway(s) 112; see also Liu Fig. 2B), and thus does not taper.

In view of the above, Applicants respectfully submit that Liu does not disclose, teach or suggest the subject matter of claim 2. Therefore, claim 2 is believed allowable in its own right.

Claim 3 depends from claim 2, and is believed allowable in view of its dependence on an otherwise allowable base claim 1 and/or claim 2. In addition, claim 3 is believed allowable in its own right.

Claim 3 recites, in part, "said plurality of leading helical surfaces smoothly transition between adjacent helical surfaces." However, in rejection claim 2 on which claim 3 depends, the Examiner relies on Liu Fig. 6C. As stated in Liu in relation to Fig. 6C, the key blade 236''' is of elongated rectangular cross section (Liu column 6, lines 62-64), and thus abruptly transition at essentially 90 degree angles across the thickness of the key blade 236''' from one spiraling surface to the adjacent spiraling surface. Other embodiments in Liu (e.g., helical key blades 236'') have a round cross section (and thus have a single outer surface with no transition) or have a polygonal cross section. (Liu column 6, lines 51-64).

In view of the above, Applicants respectfully submit that Liu does not disclose, teach or suggest the subject matter of claim 3. Therefore, claim 3 is believed allowable in its own right.

Claim 4 recites, "A turn-button for a lockset, comprising: a head portion; and a shaft extending from said head portion, said shaft having a leading helical end tip." Liu does not

disclose a turn-button for a lockset, having a head portion and a shaft extending from said head portion, the shaft having a leading helical end tip, for reason set forth above with respect to claims 1 and 2.

In view of the above, Applicants respectfully submit that Liu does not disclose, teach or suggest the subject matter of claim 4. Therefore, claim 4 is believed allowable in its present form.

Claims 5 and 6 depend, directly or indirectly, from claim 4, and are believed to be allowable in view of their dependence from otherwise allowable base claim 4. In addition, claim 6 is believed to be allowable in view of its dependence from otherwise allowable intervening claim 5. Further, claims 5 and 6 are believed allowable in their own right for substantially the same reasons set forth above with respect to claims 2 and 3, respectively.

Claim 8 is believed allowable in view of its dependence from otherwise allowable claim 1, and for reasons set forth above with respect to claim 1.

Claim 9 recites, “A lockset comprising: a lock mechanism including an actuator having an aperture; an operator; a turn-button mounted in said operator, said turn-button including a shaft; and means for facilitating self-alignment of said shaft of said turn-button with said aperture of said lock mechanism as said shaft of said turn-button is inserted into said aperture of said lock mechanism, said means including a plurality of leading helical surfaces that taper and twist from a transition line of said shaft toward a tip end of said shaft.

Applicants submit that Liu does not disclose, teach or suggest a turn-button as recited in claim 9 for substantially the same reasons set forth above with respect to claim 1 and/or claim 2.

In addition, Applicants submit that Liu does not provide means for facilitating self-alignment of a shaft of a turn-button with an aperture of a lock mechanism as the shaft of the turn-button is inserted into the aperture of the lock mechanism. In rejecting claim 9, reliance is placed

by the Examiner on Liu column 7, lines 19-24, which state, “In an open-lock operation, the protrusion 216 of the key is firstly inserted into the positioning slot 114 provided in the center of the front end of the lock core 110 for positioning and facilitating insertion of the key. Each end of the helical key blade is then aligned with the entry of the keyway.” While the passage relied on by the Examiner has to do with alignment, Liu does not disclose, teach or suggest a means for *self-alignment* of the shaft, as recited in claim 7. In particular, Liu discloses in some embodiments using a secondary component (protrusion 216 of shank 210) for aligning the helical key blade portion 230 (which is asserted by the Examiner as corresponding to the recited “shaft”), and does not disclose, teach or suggest the self-alignment of helical key blade portion 230 or of protrusion 216 of shank 210.

In view of the above, Applicants respectfully submit that Liu does not disclose, teach or suggest the subject matter of claim 9. Therefore, claim 9 is believed allowable in its present form.

Claim 10 depends from independent claim 9. Claim 10 is believed allowable in view of its dependence from otherwise allowable base claim 9.

In addition, the subject matter of claim 10 corresponds generally to that of claim 3, and thus is believed allowable in its present form for substantially the same reasons set forth above with respect to claim 3.

Claims 12-16 depend, directly or indirectly, from independent claim 1. Claims 12-16 are believed allowable in view of their dependence from otherwise allowable base claim 1, and for reasons set forth above with respect to claim 1.

For at least the reasons set forth above, Applicants respectfully request that the rejection of claims 1-6, 8-10, and 12-16 under 35 U.S.C. 102(e) as being anticipated by Liu be withdrawn.

Claims 11 and 17 were rejected under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Hurdle (U.S. Patent No. 842,834).

Claim 11 depends from claim 1 and is believed allowable in view of its dependence from otherwise allowable base claim 1, since Hurdle does not overcome the deficiencies of Liu with respect to claim 1.

Also, claim 17 depends from claim 9 and is believed allowable in view of its dependence from otherwise allowable base claim 9, since Hurdle does not overcome the deficiencies of Liu with respect to claim 9.

In addition, each of claims 11 and 17 is believed allowable in its own right.

Claim 11 recites, “The lockset of claim 1, wherein said operator is one of a door knob and a door lever, said shaft of said turn-button extending from said head portion through said one of said door knob and said door lever to engage said aperture of said lock mechanism.” Also, claim 17 recites, “The lockset of claim 9, wherein said operator is one of a door knob and a door lever, said shaft of said turn-button extending through said one of said door knob and said door lever to engage said aperture of said lock mechanism.”

In rejecting claims 11 and 17, the Examiner asserts that claims 11 and 17 are obvious as a combination of the Liu lock cylinder having a helical keyway (112 in Liu) that is contained in the lock shell (102 in Liu) with the door knob of Hurdle. Claims 11 and 17 recite with respect to respective base claims 1 and 9 that the operator is one of a door knob and a door lever, and it is the shaft of the turn-button that extends from the head portion of the turn-button through the door knob (or door lever) to engage the aperture of the lock mechanism. In particular, the Examiner asserts that key 200 of Liu corresponds to the recited “turn-button”, key blade portion 230 as corresponding to the recited “shaft”, and helical key blades 236 as corresponding to the recited

“leading helical tip”. In Hurdle, it is the lock cylinder (m) that extends to the outside of the door knob. Thus, even if combined (although Applicants maintain it would not be obvious to do so), the key 200 of Liu would engage the lock cylinder (m) of Huddle, and thus would not provide a configuration of “said shaft of said turn-button extending from said head portion through said one of said door knob and said door lever to engage said aperture of said lock mechanism.” Thus, each of claims 11 and 17 is believed allowable in its own right.

In view of the above, Applicants respectfully request that the rejection of claims 11 and 17 under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Hurdle be withdrawn.

New claim 21 has been added, and further and patentably defines the invention over the cited references. Support for new claim 21 may be found, for example, in Applicants’ drawings, Figs. 1-3, and in the Specification at page 2, line 31-page 3, line 5.

For the foregoing reasons, Applicants believe the present application is in condition for allowance in its present form, and it is respectfully requested that the Examiner so find and issue a Notice of Allowance in due course.

In the event Applicants have overlooked the need for an extension of time, an additional extension of time, payment of fee, or additional payment of fee, Applicants hereby conditionally petition therefor and authorize that any charges be made to Deposit Account No. 20-0095, TAYLOR & AUST, P.C.



Should any question concerning any of the foregoing arise, the Examiner is invited to telephone the undersigned at (317) 894-0801.

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